

Rombough, Kyrik

From: Smith, Kim
Sent: Friday, November 14, 2008 7:17 AM
To: Gustafson, Brian; Rombough, Kyrik
Cc: Duvall, Ron
Subject: FW: Attn: Hyperion Air Permit

Hyperion comment.

Kim

-----Original Message-----

From: James Hoefelmeyer [mailto:jdhoefelmeyer@gmail.com]
Sent: Friday, November 14, 2008 12:01 AM
To: DENR INTERNET INFORMATION
Cc: James Hoefelmeyer
Subject: Attn: Hyperion Air Permit

Please find attached a document containing my comments regarding the Hyperion draft air permit.

South Dakota DENR
Joe Foss Bldg
523 E. Capitol
Pierre, SD 57501

DENR:

Hyperion Energy has recently applied for an air permit to construct and operate an oil refinery in South Dakota. The South Dakota DENR has approved a draft air permit, which has been made publicly available. The public has a responsibility to review the draft air permit and forward comments to the DENR. With this letter, I challenge several components of the draft air permit. The DENR has the reciprocal responsibility to read the public comments, and furthermore to revise the draft air permit to address concerns – especially regarding the legality of proposed permit guidelines. The revised permit should again be subjected to public scrutiny until the document is deemed legal.

In its current state, there are a number of items within the permit that will likely require revision. These are summarized below:

Table 1-1:

The tables on pages 1-18 of the air permit are missing information that would be required to calculate anticipated air emissions. Examples of specific missing information include: 1) manufacturer and model number of equipment, 2) operating parameters of the equipment, and 3) an engineering analysis (in the form of a computational model) of the dynamic mass and energy balance of each component of the proposed refinery and the refinery as a whole. It is unclear that emissions values can be calculated if the information above does not exist. The information should be made publicly available, and certainly available to state offices for purposes of review and scrutiny.

Section 1.4:

This fine amount and structure is simply inadequate to protect citizens from harmful emissions. The fine is not a significant deterrent to prevent emissions. The proposed refinery could theoretically emit a large quantity of toxic material that present health and safety threats outside of its boundaries. The cost of remediation is then passed on to another party, an example of deferred externality. The prevention of the theoretical large emission event could require expensive procedures such as shut down and restart with delayed processing. If it is less expensive for the proposed refinery to pay a \$10,000 fine and simply emit the toxic materials rather than to properly and safely contain it, then there is no other legal procedure to prevent the refinery from preventing the unnecessary emission event. Effectively the state is giving the proposed refinery a price of \$10,000 for upset emission events and other violations, while the healthcare costs of sick individuals and loss of economic productivity will easily be orders of magnitude higher. The state should require, in the event of an emissions violation, a cease-operation of the facility until the problem is discovered, fixed, and a plan for preventative action is in place to avoid repeated violations. The fine should be in the range of \$500,000 –

\$5,000,000 per day. The higher fine rate would prevent the proposed refinery from simply paying the state \$10,000 per day to purchase an unlimited emissions rate.

Section 1.5, #2:

The air permit states that an inspector shall view records. The air permit should also state that records be maintained by the proposed refinery and a third party record keeper in order to ensure there is not a conflict-of-interest. Obviously, if the records that the state inspector viewed were only maintained by the proposed refinery (the potential violator of the air permit), then the records could easily be modified to falsely represent the actual operations.

Section 1.7, #2:

This defines a limited set of conditions to obtain data. There is absolutely zero reason to limit the methods for data collection as long as the method is better than or equal to the existing methods. Thus, as technology advances and improved data collection methods become available, they can be adopted for use.

Section 3.1:

This section states that the owner/operator is the record keeper for purposes of the air permit. While it is fine if the data is for internal private purposes, the record keeping by the owner/operator presents a conflict of interest when the public domain has the right to the record. (Similarly, see section 1.5, #2). The air permit should also state that records be maintained by the proposed refinery and a third party record keeper in order to ensure there is not a conflict-of-interest. Obviously, if the records that the state inspector viewed were only maintained by the proposed refinery (the potential violator of the air permit), then the records could easily be modified to falsely represent the actual operations.

Section 3.4, 3.5:

The air permit states that the state shall be notified within 15 days of beginning construction or beginning startup. This allows activities to begin at the choosing of the entity wishing to begin construction, even if other permit applications have not been completed or approved. The permit should be revised to say the state (and the public) shall be notified 90 days in advance of beginning construction and the state (and the public) shall be notified 90 days in advance of beginning startup. This condition gives advance warning to the state and public to examine all available information to make sure the proposed activity is legal.

Section 3.6, 3.7, 3.8:

These sections state that the owner/operator will keep a daily log, record-keeping for startup/shutdown/malfunction, and quarterly reports. While it is fine if the data is for internal private purposes, the record keeping by the owner/operator presents a conflict of interest when the public domain has the right to the record. The air permit should also state that records be maintained by the proposed refinery and a third party record keeper in order to ensure there is not a conflict-of-interest. Obviously, if the records were only maintained by the proposed refinery (the potential violator of the air permit), then the records could easily be modified to falsely represent the actual operations.

Section 4.0 is flawed because it uses the outdated, poorer quality definition of 'BACT'. The section should include the air quality standards 'LAER'.

Why are the terms 'filterable and condensable' included? If these terms are included, then the process and materials for filtration and condensation should be defined. Obviously a 30 micron filter would be completely ineffective for sequestration of PM10 particulates.

Table 4-1:

Combined Gas Cycle turbines 1-6 have a large variation in the allowable PM10 emission depending on fuel used. This provides a significant range in which one could use different fuels and move into different categories of emission limits.

Table 4-1:

The air permit allows PM10 emission rate of 1463 tons/yr; however the air permit application stated 1046 tons/yr.

Table 4-2:

Entry 45a is not clear.

The air permit allows SO2 emission rate of 3181 tons/yr, while the application stated 863 tons/yr.

Table 4-4:

The VOC emission limit for entry 45a is not appropriate. The permit states the limit as being the least stringent of 20 ppm or 98% destruction efficiency. The latter term is enormously flexible and could potentially allow pure waste from a process to be categorized as 'wastewater'. With 98% efficient treatment, the wastewater plant could release the 'treated' water with contamination levels much higher than 20 ppm (up to a theoretical maximum of 2%!).

Table 4-5:

The air permit allows CO emission rate of 2314 ton CO/yr, the application stated 1999.

Section 5.4:

The air permit states that haul roads be paved within 1 year of startup. This provision would allow for dirt roads to be used during the construction phase, between completion of construction to startup, and 1 year after startup. The time-scale could be 3-6 years in which heavy traffic would utilize a network of dirt roads criss-crossing many square miles of ground. The amount of dust raised in under that scenario would be significant, and could be reduced. Potentially more serious is the erosion and flood control problems posed by creating a large surface of exposed ground. During rainy periods, the lack of erosion/flood control could lead to significant problems in the area that impact lands well outside construction boundaries. This provision irresponsibly allows excessive generation of dust, erosion of soil, and flooding on adjacent land.

Section 5.9:

The air permit states that a proposed operation plan must be submitted within 60 days prior to startup. This provision is insufficient towards ensuring the safety and health of the public. Several problems exist: 1) Hyperion could theoretically submit the operation plan within a few minutes of startup, which would not allow for any type of review, oversight, challenge, or modification before startup; 2) No mechanism is stated in section 5.9 for the review and oversight of the operation plan. If there are deficiencies, there needs to be enough time, and qualified personnel to independently review the plan, and to catch problems before startup. There should also be a formal mechanism for challenging the operation plan, and to amend it. Obviously, the state (and public) must have the chance to review the operation plan to check that it is realistic, feasible, allows for operation within permit allowances, etc. If flaws are found in the operating plan, there must be a way to allow for a challenge and revision. 3) In a similar vein as the comment regarding table 1-1, there is no mention of manufacturer and model number of components and machinery, no mention of operating parameters, and no plan of operation that simulates the proposed operation, including mass balance and energy balance for the facility. Such information should be submitted even prior to approving an air permit. Proposed new language to this section shall call for the completion of an operation plan, submitted to the state (and available to the public) 60 days prior to construction. The state and public shall have 60 days to review the operation plan and present any challenges. After that period, the state shall address all challenges within an additional time period. All challenges that are deemed sufficient to warrant modification of the operation plan must be addressed in a revised operation plan that is resubmitted to the state. Any revised plan must re-enter the evaluation cycle until it is no longer challenged, and would then be effectively approved. Upon completion of construction, an updated plan should be submitted and approved 60 days prior to startup. The 60 day period would be useful to do final safety inspections by engineers and safety officers.

Section 5.10:

The startup/shutdown/malfunction plan should be submitted **before** construction begins (as proposed in the comment regarding section 5.9). The plan should be reviewed by the state/public/third party to make sure it is feasible, safe, and can operate within the emission limits.

Pg. 49-50 of the Statement of Basis document states that methane is not considered a regulated NSR pollutant. However, regulated NSR pollutants are defined, in accordance with 40 CFR 52.21(b)(50) under definition 1, 'Any pollutant for which a National Ambient Air Quality Standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds and NO_x are precursors for ozone)' Methane is very obviously a volatile organic compound (by definition, an organic compound having high vapor pressure) – methane is a VOC, and qualifies for emission limits. The compound can react with atmospheric OH radical followed by oxygen to form the organoperoxide, CH₃OO. Organoperoxides readily undergo reaction with nitrogen dioxide to form the organoperoxonitrate CH₃OONO₂. This is a component of smog regulated as 'ozone'.

General concerns:

- A computer model of the operating refinery (with mass and energy balances for the facility and its components) has not been submitted. Manufacturers/Models for the equipment has not been specified.
- Environmental impact study has not been conducted on the public's behalf.
- There is not a plan in place for the maintenance and checking of valves to ensure that leaks are detected and remedied within minutes of failure.
- There need to be requirements to include catalysts for reduction of emissions at anticipated source points. Any source of CO emission should be fitted with a CO oxidation catalyst. The materials for CO oxidation catalysis are well developed, and can greatly reduce emissions. Additionally, there should be catalysts for oxidation of VOC fugitive emissions from storage tanks and other known sources.
- All of the emissions sources have been pre-defined, which does not include unanticipated sources due to failures or designed release mechanisms not identified as emission sources in the draft air permit. For instance holding ponds have not been identified, but could be a major source of emissions. There need to be guidelines in any draft air permit that account for unforeseen or so far undefined or unmentioned emissions sources and regulation the emissions from those to zero.

These comments represent some of my concerns regarding the draft air permit. The draft air permit does not include sufficient measures for the protection of citizens, air-quality, and wildlife in the region. If the DENR requests clarification on any of the points described above, please do not hesitate to contact me. I look forward to an expert and thorough review of the above comments, and anticipate your equally informative response. I believe you will find it clear that revisions will be necessary to ensure the air permit is in full legal compliance.

Regards,

James D. Hoefelmeyer